DOCUMENT RESUME

ED 440 485 EC 307 766

TITLE	Behavioral Outcomes of Deinstitutionalization for People with Intellectual Disabilities: A Review of Studies Conducted between 1980 and 1999.
INSTITUTION	Minnesota Univ., Minneapolis. Research and Training Center on Community Living.; Minnesota Univ., Minneapolis. Inst. on Community Integration.
SPONS AGENCY	National Inst. on Disability and Rehabilitation Research (ED/OSERS), Washington, DC.; Administration on Developmental Disabilities (DHHS), Washington, DC.
PUB DATE	1999-10-00
NOTE	13p.
CONTRACT	90-DN-0028-03; H133B980047
AVAILABLE FROM	Institute on Community Integration, University of Minnesota, 109 Pattee Hall, 150 Pillsbury Dr. SE, Minneapolis, MN 55455. Tel: 612-624-4512
PUB TYPE	Collected Works - Serials (022) -- Reports - Research (143)
JOURNAL CIT	Policy Research Brief; v10 n1 Oct 1999
EDRS PRICE	MF01/PC01 Plus Postage.
DESCRIPTORS	Adults; Aggression; Behavior Disorders; *Behavior Problems; *Community Programs; Cost Effectiveness; *Deinstitutionalization (of Disabled); *Disabilities; *Group Homes; Independent Living; Life Satisfaction; *Social Integration; Well Being

ABSTRACT

This reports presents results from a review of 38 published studies that measured behavioral outcomes associated with the movement of people with mental retardation from public institutions to community residential settings. Results demonstrate strongly and consistently that people who move from institutions to community settings have experiences that help them to improve their adaptive behavior skills. In the area of challenging behavior, all of the findings of decline associated with deinstitutionalization occurred in studies published during the 1980s. The studies of challenging behavior in the 1990s consistently found improvement in both overall challenging behavior and in the specific subdomains of challenging behavior measured. Evaluations of community behavior support and crisis response systems show that they can be both effective in addressing challenging behavior and preventing institutionalization, and at the same time be cost-effective. The review also found that people who moved from institutions improved their material well-being and community integration over that of a contrast group of people who remained in institutions. Finally, a comparison of the relative cost of serving people in community versus institutional settings found that the average expenditure for state institutions is substantially greater than the average expenditure from community service recipients. (Contains 62 references.) (CR)

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Policy Research Brief

RESEARCH & TRAINING CENTER ON COMMUNITY LIVING
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Behavioral Outcomes of Deinstitutionalization for People with Intellectual Disabilities: A Review of Studies Conducted Between 1980 and 1999

This Policy Research Brief reports the results from a review of 38 published studies that measured behavioral outcomes associated with the movement of people with mental retardation from public institutions to community residential settings. The review was conducted by Shannon Kim, Department of Educational Psychology and Educational Leadership, University of Mississippi in University; and Sheryl A. Larson and K. Charlie Lakin of the Research and Training Center on Community Living, Institute on Community Integration, University of Minnesota, Twin Cities.

Introduction

Deinstitutionalization as a policy and a practice has produced dramatic changes in the sizes and types of places where individuals with intellectual disabilities live. In the United States, this policy has produced dramatic reductions in the census at large state-operated institutions (from 154,638 people in 1977 to 52,488 in 1998) (Prouty & Lakin, 1999). Similar reductions have also occurred in other institutions serving 16 or more people with intellectual disabilities (declining from 52,718 people in 1977 to 35,247 in 1998). A corresponding trend has increased the number of people receiving residential supports in homes with six or fewer people with intellectual disabilities from 20,400 people in 1977 to 202,266 people in 1998. Four states (WV, RI, VT and DC) have moved all people with intellectual disabilities out of facilities serving 16 or more people. An additional seven states (AK, AZ, CO, HI, ME, MT, NM) serve more than 90% of all persons with intellectual disabilities receiving residential supports in settings with 15 or fewer residents (Prouty & Lakin, 1999). Clearly, the practice of deinstitutionalization has been accepted and adopted widely.

Despite the enormous changes that have occurred over the past 20 years, however, there were in June 1998 still 89,348 people with intellectual disabilities living in private or public residential institutions and an estimated 24,144 living in nursing homes in 1998 (Prouty & Lakin, 1999). This reality has not gone unnoticed by the national self-advocacy organization Self-Advocates Becoming Empowered (SABE), which has begun "Operation Close the Doors" (Nelis & Ward, 1996).

Despite the ongoing movement toward depopulation and closure of institutions, deinstitutionalization continues to be a controversial topic in states that continue to operate institutions. A considerable body of research has examined the relative risks and benefits associated with institutional and community living. Many studies have examined changes in adaptive or challenging behavior associated with movement from institutions to community settings. Summaries of this research noted that, overall, adaptive behavior was almost always found to improve with movement to community settings from institutions, and that parents who were often as a group initially opposed to deinstitutionalization were almost always satisfied with the results of the move to the community after it occurred (Larson & Lakin, 1989; Larson & Lakin, 1991). A recent meta-analysis of 11 studies of specific adaptive behavior skills found that self-care skills — and to a lesser degree communication skills, academic skills, social skills, community living skills, and physical development — improved significantly with

A summary of research on policy issues affecting persons with developmental disabilities. Published by the Research and Training Center on Community Living, Institute on Community Integration (UAP), College of Education and Human Development, University of Minnesota.

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deinstitutionalization (Lynch, Kellow & Willson, 1997). A recent literature review examined the outcomes of deinstitutionalization in the United Kingdom and Ireland and concluded that deinstitutionalization was generally, but not inevitably, associated with increases in adaptive behaviors and reductions in observed challenging behavior (Emerson & Hatton, 1996).

This study extends and updates an original report by Larson and Lakin (1989) reviewing all identifiable literature on changes in adaptive and challenging behavior associated with movement from institutional to community residences. It is understood in presenting the findings of this analysis that adaptive behavior and challenging behavior are only two of many important outcomes of residential services. However, considering the continuing debates regarding depopulation and closure of public and private institutions, and the frequent requests we receive for outcomes of studies conducted since our last review, we believe this update may be useful in informing future policy decisions.

■ Method

Selection of Studies

This review includes studies identified through the following methods: (a) a computer search of the *PSYCHINFO* database from 1980 to 1998; (b) a computer search of the *ERIC* database from 1980 to 1998; (c) a computer search of the *Dissertation Abstracts Online* database from 1980 to 1998; (d) a manual review of *American Journal on Mental Retardation, Education and Training in Mental Retardation, Journal of the Association for Persons with Severe Disabilities, Journal of Intellectual and Developmental Disabilities,* and *Mental Retardation* from 1980 to 1998; (e) use of the "ancestry approach," that is, the manual review of reference lists of relevant research to locate additional studies; (f) direct requests for assistance in identifying relevant studies made to researchers prominent in this area of research; and (g) inclusion of studies cataloged by the authors after publication of the original review.

Over 250 studies were screened for inclusion in this review. The following criteria were applied in selecting studies for inclusion: (a) a minimum of five subjects moved from institutional to community residences after 1974; (b) basic demographic information reported about the sample; (c) exclusive or primary use of adult subjects; (d) baseline data collected while the subjects were residing at the institution or within one month of moving to the community; (e) post-test results obtained after the subjects had resided in the community a minimum of six months; and (f) overall adaptive behavior, overall challenging behavior, and/or specific domains of adaptive or challenging behavior were measured with the same assessment instruments in the same manner at the times being compared. The authors conferred in applying the criteria to specific studies. These methods yielded a total of 38 studies for inclusion in this study.

Coding Procedures

The 38 studies were reviewed and coded by the authors according to research design, outcomes reported, and direction and magnitude of the findings. Two types of research design were identified: longitudinal designs, which examined changes within a single group over time ($n = 29$ studies), contrast group designs, which compared changes in treatment and control groups over time ($n = 14$ studies), and studies that used both types of design ($n = 5$ studies).

Several different types of outcomes were reviewed and coded. Adaptive behavior outcomes were summarized into nine categories (e.g., overall, academic skills, community living skills, language/communication skills, motor/physical skills, leisure/recreation skills, self-care/domestic skills, social skills, and vocational skills). Challenging behavior outcomes were collapsed into the most frequently cited categories (overall, frequency, severity, external, internal, and asocial behaviors).

The procedure for coding the direction and magnitude of outcomes utilized the baseline (institutional) scores as the point of reference. A (+) was recorded to indicate the subjects' scores improved in the community, but not to a statistically significant degree, and a (+ +) was used to indicate this difference was statistically significant ($p \leq .05$). Likewise, a (–) was used to indicate scores declined in the community, with a (– –) used to indicate the difference was statistically significant ($p \leq .05$). In cases in which the authors did not test for statistical significance, an asterisk (*) was placed beside the direction indicator. A zero (0) was used to signify that no tendency was found, or that the results were presented in a way that prevented identification of tendencies. In summarizing the findings, blanks were used to indicate a category of outcome was not studied, or that no data were provided.

The decision rules were developed and consulted to resolve potentially conflicting findings. Conflicting findings were apparent when studies reported findings from more than one measure in a single domain. When such findings were in opposite directions, a "0" was recorded to indicate that the findings appeared to cancel each other out and/or that the results could not be interpreted. When the findings were in the same direction, but of different magnitudes (e.g., + +, +, and 0), they were reported to be not statistically significant. When studies used multiple baselines, the last baseline score obtained while the subjects resided in the institution was used as the point of reference. When studies reported results from more than one post-test this review noted the outcome for the longest interval between baseline and follow-up.

■ Results

Contrast Group Studies

Fourteen studies compared people who moved from institutions to small residential settings with a "contrast" group of people who stayed in institutions. All but one of the studies found either a significant improvement associated with community placement or found improvements that did not reach statistical significance (see Table 1). In terms of overall challenging behavior, only one study reported a difference between stayers and leavers that was statistically significant. In that study, movers stayed the same while the stayers had overall challenging behavior ratings that declined significantly.

The findings regarding outcomes within specific domains of adaptive behavior among the contrast group studies (see Table 2 on next page) showed movers with either statistically significant improvements relative to the stayers, or with

Table 1: Overall Adaptive and Challenging Behavior Outcome: Contrast Group Studies

Study	Location	N[a] (exp, cont)	Age[b]	Level of Mental Retardation[c]	Time (months)	Adaptive Behavior[d]	Challenging Behavior[d]	Instrument[e]
United States								
Bradley, Conroy, Covert, & Feinstein (1986)	NH	160 (80, 80)	AC	B, Mi, Mo, S, P	72	+ +	–	CDER
Calapai (1988)	NY	106 (53, 53)	NS	Mo, S, P	24	+		DDIS
Conroy, Efthimiou, & Lemanowicz (1982)	PA	140 (70, 70)	A	Mi, Mo, S, P	24	+ +	+ +[f]	BDS
Conroy, Lemanowicz, Feinstein, & Bernotsky (1991)	CT	248 (124, 124)	A	Mi, Mo, S, P	60	+ +	+	CIER
D'Amico, Hannah, Milhouse, & Froleich (1978)	WV	13 (6, 7)	AC	Mi, Mo, S, P	12	+ +		CBC
Davis (1990)	PA	66 (33, 33)	A	NS	48	+	+	BDS
Rosen (1985)	AR	112 (56, 56)	A	B, Mi, Mo, S, P	24	+ +		SSSQ
Schroeder & Henes (1978)	NC	38 (19, 19)	A	MA range 4.0 to 6.8 yrs	12	+ +		PAC
Williams, Paskow, Thompson, & Levine (1985)	DC	26 (13, 13)	AC	B, Mi, Mo, S, P	15	+	–	ABS
International								
Molony & Taplin (1990)	Australia	57 (26, 31)	A	B, Mi, Mo, S, P	12	+ +	0	VABS

[a] N: numbers in parentheses indicate the number of persons in the experimental and control groups.
[b] Age: A, Adults; AC, Adults and Children; NS, Not Specified.
[c] Level of Mental Retardation: B, Borderline; Mi, Mild; Mo, Moderate; S, Severe; P, Profound; NS, Not Specified.
[d] Results: + + statistically significant improvement relative to the control group at $p \leq .05$.; + improvement relative to the control group, but not statistically significant; – – statistically significant decline relative to the control group at $p \leq .05$.; – decline relative to the control group, but not statistically significant; 0, no change or conflicting results relative to the control group.
[e] Instruments: ABS, *Adaptive Behavior Scale*; BDS, *Behavior Development Scale*; CBC, *Camelot Behavior Checklist*; CDER, *Client Development Evaluation Report*; CIER, *Connecticut Individual Evaluation Report*; DDIS, *Developmental Disabilities Information Survey*; PAC, *Progress Assessment Chart*; SSSQ, *Street Skills Survival Questionnaire*; VABS, *Vineland Adaptive Behavior Scales*.
[f] The experimental group stayed the same while the control group declined.

Table 2: Adaptive and Challenging Behavior Domain Outcomes[a]: Contrast Group Studies

Study[b]	Academic Skills	Community Living Skills	Language/ Communication Skills	Motor/ Physical Skills	Leisure/ Recreation Skills	Self-Care/ Domestic Skills	Social Skills	Vocational Skills	Challenging Behavior Frequency	Challenging Behavior Severity	External Behavior	Internal Behavior	Asocial Behavior
United States													
Bradley, Conroy, Covert, & Feinstein (1986)								0					
Calapai (1988)	+	+	+	+		+							
Close (1977)[c]						+ +							
D'Amico, Hannah, Milhouse, & Froleich (1978)	0	+ +	+ +	+ +		+ +	+ +	0					
Eastwood & Fisher (1988)[d]	+ +	+ +	+			+ +	+ +	+ +					
Fuess (1987)[e]	+	0	+	+		+ +	0	+			+ +	+	+
Horner, Stoner, & Ferguson (1988)[f]		+				+ +	+ +				+ +	+	
Rosen (1985)	+ +	+ +				+ +		+ +					
Schroeder & Henes (1978)			+			+	+						
International													
Molony & Taplin (1990)			+ +			+ +	+ +				+	+	0

Guide: + +, statistically significant improvement relative to the control group; +, improvement relative to the control group, but not statistically significant; – –, statistically significant decline relative to the control group; –, decline relative to the control group, but not statistically significant; **0**, no change or conflicting results relative to the control group. Statistical significance reflects a p-value ≤ .05

[a] In cases where repeated measures are reported, results from the last time period are used.

[b] Complete information on study characteristics can be found in Table 2 unless otherwise indicated.

[c] This study was conducted in Oregon with 12 adult subjects (6 per group) who had severe and profound levels of mental retardation. The Developmental Record (DR) was used to assess subjects after 12 months in the community.

[d] This study was conducted in the Northeastern United States with 98 adult subjects (49 per group) who had borderline, mild, moderate, severe, and profound levels of mental retardation. The MDPS was used to assess subjects after 60 months in the community.

[e] This study was conducted in Ohio with 122 (104, 18) adult subjects who had borderline, mild, moderate, severe, and profound levels of mental retardation. The ABS was used to assess subjects after 48 months in the community.

[f] This study was conducted in Oregon with 46 adult subjects (23 per group) who had mild, moderate, severe, and profound levels of mental retardation. The BDS was used to assess subjects after 60 months in the community.

improvements that did not reach statistical significance. As the Lynch, Kellow & Willson (1997) meta-analysis reported, the self-care or domestic skills domain of adaptive behavior showed the most consistent statistically significant improvements. Other adaptive behavior domains that showed statistically significant improvements in at least two separate studies included academic skills, community living skills, language or communication skills, social skills, and vocational skills. Unlike the overall challenging behavior findings which showed little consistency in differences between stayers and movers, externalized challenging behavior (e.g., aggression toward other people and property destruction) improved significantly for movers in two studies relative to stayers and improved, but not significantly so, in the third study.

Longitudinal Studies

General adaptive behavior. A total of 19 studies examined changes in overall adaptive behavior among movers in samples in the United States (see Table 3). Of those studies, 13 reported statistically significant improvements in overall adaptive behavior associated with moving to a small community setting, one reported improvements that were not statistically significant, one reported improvements that were not tested for significance, one reported a decline that was not statistically significant, and two reported significant declines. One international study reported statistically significant improvements in overall adaptive behavior at the longest point measured, one reported improvements that were not

Table 3: Overall Adaptive and Challenging Behavior Outcome: Longitudinal Studies

Study	Location	N	Age[a]	Level of Mental Retardation[b]	Time (months)	Adaptive Behavior Results[c]	Challenging Behavior Results[c]	Instrument[d]
United States								
Apgar, Cook, & Lerman (1998)	NJ	44	A	B, Mi, Mo, S, P	60	+ +	+	JIF
Bolin (1994)	OK	44	AC	Mi, Mo, S, P	12	+ +		ADS
Bradley, Conroy, Covert, & Feinstein (1986)	NH	93	AC	B, Mi, Mo, S, P	84	+ +	–	CDER
Business Services Group (1999)	CA	44	AC	B, Mi, Mo, S, P	12	–	+	CDER
Calapai (1988)	NY	53	NS	Mo, S, P	6	– –[e]		DDIS
Center for Oucome Analysis (1999)	IN	92	AC	Mi, Mo, S, P	6	+ +	–	ABS
Colorado Division of Dev. Disabilities (1982)	CO	115	AC	Mi, Mo, S, P	12	+		BDS
Conroy (1995)	OK	382	AC	B, Mi, Mo, S, P	60	+ +		BDS
Conroy (1998)	KS	88	AC	P	12	+ +	+	ABS
Conroy & Bradley (1985)	PA	383	AC	B, Mi, Mo, S, P	72	+ +	+	BDS
Conroy, Feinstein, & Lemanowicz (1988)	CT	207	A	B, Mi, Mo, S, P	24	+ +	– –	CIER
Conroy, Lemanowicz, Feinstein, & Bernotsky (1991)	CT	569	A	Mi, Mo, S, P	60	+ +	+	CIER
Conroy, Seiders & Yuskauskas (1998)	CA	91	A	Mi, Mo, S, P	36	+ +	+ +	CDER
Feinstein, Lemanowicz, Spreat, & Conroy (1986)	LA	158	AC	B, Mi, Mo, S, P	9	+ +	+ +	BDS
Fortune, Heinlein, & Fortune (1995)	WY	157	AC[f]	B, Mi, Mo, S, P[f]	72	– –	+ +	ICAP
Hayden, DePaepe, Soulen, & Polister (1995)	MN	190	A	B, Mi, Mo, S, P	12		0	ICAP
Kleinberg & Galligan (1983)	NY	20	A	Mi, Mo, S, P	12		–	ABS
Maisto & Hughes (1995)	NC	42	A	Mo, S, P	12	+ +		SIB
Rose, White, Conroy, & Smith (1993)	PA	7	A	Mi, Mo	12	+ +	+	ICAP
Thompson & Carey (1980	MN	7	A	S, P	24	+*		MDPS
Williams, Paskow, Thompson, & Levine (1985)	DC	80	AC	B, Mi, Mo, S, P	15	+	– –	ABS
International								
Conneally, Boyle, & Smyth (1992)	Ireland	11	A	S, P	24	+ +	+ +	PAC/ABS
Cullen, Whorisky, Mackenzie, Mitchell, Ralston, Shreeve, & Stanley (1995)	Scotland	39	A	B, Mi, Mo, S, P	24	+	+ +	ABS
Webb, Wells, & Hornblow (1986)	New Zealand	19	A	MA 1-9	12	– –	–	ABS

[a] Age: A, Adult; AC, Adults and Children, NS, not specified.

[b] Level of Mental Retardation: B, Borderline; Mi, Mild; Mo, Moderate; S, Severe; P, Profound; MA, Mental Age.

[c] Results: + +, statistically significant improvement after move to the community; +, improvement after move to the community, but not statistically significant; – –, statistically significant decline after move to the community; –, decline after move to the community, but not statistically significant; 0, no change or conflicting results after move to the community; *, mean scores not tested for statistical significance. Statistical significance reflects a p-value ≤ .05.

[d] Instruments: ABS, *Adaptive Behavior Scale*; ADS, *Adaptive Development Scale*; BDS, *Behavior Development Scale*; CDER, *Client Development Evaluation Report*; CIER, *Connecticut Individual Evaluation Report*; DDIS, *Developmental Disabilities Information Survey*; ICAP, *Inventory for Client and Agency Planning*; JIF, *Johnstone Information Form*; MDPS, *Minnesota Developmental Progress Scales*; PLQP, *Personal Life Quality Protocol*; PAC, *Progress Assessment Chart*; SIB, *Scales of Independent Behavior*.

[e] The subjects demonstrated statistically significant gains between 6 and 12 months and between 12 and 24 months. However, tests were not conducted to compare later years' results with baseline findings.

[f] Demographics were reported for the entire population of Wyoming service recipients. The authors report the sample to be representative of the population.

[g] Sample size declined over the life of the experiment. Only testing periods for which the number of subjects was reported are listed here.

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statistically significant, and one in New Zealand reported statistically significant declines associated with movement.

General challenging behavior. Longitudinal studies of changes in challenging behavior showed the same variability reported for the contrast group studies. Eight U.S. studies found improvements in challenging behavior after the move, including three studies in which these changes were statistically significant (after 9, 36 and 72 months). Five U.S. studies reported increased levels of challenging behavior after the move, including two studies that reported statistically significant increases (after 15 and 24 months). Two of the three international studies of challenging behavior reported statistically significant improvements (after 24 months), with the third reporting declines that were not statistically significant. All of the studies published in 1990 or later reporting significant findings regarding changes in challenging behavior reported significant improvements.

Specific domains. Sixteen longitudinal studies examined changes in specific domains of adaptive and challenging behavior (See Table 4). While the contrast group studies found the most consistent pattern of improvement in self-care or domestic skills, among the longitudinal studies social skills showed the most consistent improvement. Eight of the nine longitudinal studies that measured social skills found statistically significant improvements after movement to the community, and the ninth found improvements that did not reach statistical significance. Similarly, consistent improvements were reported for community living skills and motor or physical skills.

Again, patterns within specific domains of challenging behavior were not predictably associated with movement to the community. Two studies reported significant improvements in internal maladaptive behavior (e.g., self-injurious behavior), but another study found statistically significant deterioration. For externalized maladaptive behavior, four studies found improvements that were not statistically significant while one found deterioration that was statistically significant. The only study reporting interpretable findings for asocial maladaptive behavior reported statistically significant improvement associated with a move to the community.

■ Discussion

Ten years ago when we published our first synthesis of the literature on the outcomes of deinstitutionalization, we concluded that "available research denies support for the assertion that people obtain greater or even equal benefit in adaptive behavior from living in institutions. In fact, this research suggests that those benefits very consistently accrue more to the people who leave institutions to live in small community homes" (Larson & Lakin, 1989). Studies conducted in the subsequent decade continue to support this conclusion. In a few studies, adaptive behavior did not improve in conjunction with community living, but in more than two-thirds of the studies reviewed, statistically significant improvements were found.

Interestingly, in the area of challenging behavior, all of the findings of decline associated with deinstitutionalization occurred in studies published during the 1980s. The studies of challenging behavior in the 1990s consistently found improvements (some statistically significant, some not) in both overall challenging behavior, and in the specific subdomains of challenging behavior measured. One possible explanation for these more positive and more consistent outcomes could be improved behavioral supports available to persons in community settings. Increasingly, examples of systems and strategies of community behavioral support can be found in the professional literature and descriptions of innovations in community services. States as large as California and as small as Vermont are developing systems of behavioral support and crisis response for people with challenging behavior outside of the institutional context. Evaluations of community behavior support and crisis response systems show that they can be both effective in addressing challenging behavior and preventing institutionalization, and at the same time cost-effective (Coland & Weiseler, 1995; Rudolph, Lakin, Oslund & Larson, 1998). Perhaps the development and refinement of community supports for people with challenging behavior is now contributing to improved outcomes. Perhaps the greater experience in serving people with challenging behavior in community settings is increasing the effectiveness of those services. Perhaps the substantial shift in the 1990s toward more personalized housing and person-centered services has reduced the stimuli of challenging behavior. Perhaps these and other factors have operated in concert to make movement to community settings more predictably associated with reductions in challenging behavior.

While it is beyond the scope of this manuscript to comprehensively review the literature on other outcomes associated with deinstitutionalization, these and other studies we reviewed examined a wide range of quality-of-life outcomes. For example, Apgar, Cook & Lerman (1998) found that people who moved from institutions not only increased adaptive behavior significantly and reduced challenging behavior, they also improved material well-being and community integration over that of a contrast group of people who remained in institutions. Similarly Conroy, Lemanowicz, Feinstein & Bernotsky (1991) found that movers had adaptive behavior that improved significantly and challenging behavior that declined; they also found that social presence increased significantly when people moved from institutions to community settings, and that movers reported significantly higher overall quality of life, satisfaction, productivity, independence, and integration than a comparison group who stayed in an institution. Conroy (1995) found that 382 Oklahomans who moved from institutions to community homes not only improved

Table 4: Adaptive and Challenging Behavior Domain Outcomes[a]: Longitudinal Studies

Study[b]	Academic Skills	Community Living Skills	Language/ Communication Skills	Motor/ Physical Skills	Leisure/ Recreation Skills	Self-Care/ Domestic Skills	Social Skills	Vocational Skills	Challenging Behavior Frequency	Challenging Behavior Severity	External Behavior	Internal Behavior	Asocial Behavior
United States													
Apgar, Cook, & Lerman (1998)		+	–	+		+ +	+ +				+		
Bolin (1994)									+[j]	+[j]			
Bradley, Conroy, Covert, & Feinstein (1986)								+ +					
Conroy (1995)										+ +[j]			
Conroy (1998)								+ +[j]					
Conroy, Feinstein, & Lemanowicz (1988)								+ +					
Fortune, Heinlein, & Fortune (1995)											+	+ +	+ +
Horner, Stoner, & Ferguson (1988)[c]		+ +				+ +	+ +				+	0	
Kleinberg & Galligan (1983)			0		0[d]	0	+ +[d]	– –[d]					
O'Neill, Brown, Gordon, & Schonhorn (1985)[e]			0			0							
Rose, White, Conroy, & Smith (1993)		+ +	+ +	+ +		+ +	+ +				+	+ +	0
Thompson & Carey (1980)			+[f]		+[f]	+[f]	+[f]						
Williams, Pasko[g,j] Thompson, & Levine (1985)		+ +		+		– –	+ +				– –	– –	
State of Wisconsin (1986)[h]	+	+ +	+ +			+	+ +	+ +					
International													
Conneally, Boyle, & Smyth (1992)			+ +[g]			+ +[g]	+ +[g]	+ +[g]					
Cummins, Polzin, & Theobald (1990)[g]			0	+ +		+ +	+ +						
McKay & MacKay (1989)[h]						– –		– –					

Guide: + +, statistically significant improvement after move to the community; +, improvement after move to the community, but not statistically significant; – –, statistically significant decline after move to the community; –, decline after move to the community, but not statistically significant; 0, no change or conflicting results after move to the community. Statistical significance reflects a p–value ≤ .05.

[a] In cases where repeated measures are reported, results from the last time period are used.

[b] Complete information on study characteristics can be found in Table 1 unless otherwise indicated.

[c] This study was conducted in Oregon with 23 adult subjects who had mild, moderate, severe, and profound levels of mental retardation. The BDS was used to assess subjects after 60–84 months in the community.

[d] The MDPS was used as the outcome measure.

[e] This study was conducted in New York with 27 adult subjects who had mild, moderate, severe, and profound levels of mental retardation. The *Skill Indicator* (SI) was used to assess subjects after 9 months in the community.

[f] The PAC was used as the outcome measure.

[g] This study was conducted in Australia with 57 adult subjects who had severe and profound levels of mental retardation. The PAC was used to assess subjects after 12, 17, and 49 months in the community. Results obtained after 49 months are reported here.

[h] This study was conducted in Northern Ireland with 11 adult subjects who had mild mental retardation. The ABS was used after 18–84 months in the community.

[i] The *Challenging Behavior Scale* (CBS) was used as the outcome measure.

[j] Used the *Orientation Toward Productive Activities* scale.

their adaptive behavior significantly, they also enjoyed more opportunities to make choices after they moved.

Another "outcome" of importance is the relative cost of serving people in community versus institutional settings. The average expenditure for state institutions (about $104,000 per person per year) is substantially greater than the average expenditure for community service recipients (about $30,000 per year for people supported by services funded by the Medicaid Home and Community Based Services Waiver program; Prouty & Lakin, 1999). Recognizing the differences between "typical" community and institution residents, one recent study used an analysis of covariance in a matched sample of individuals moving from institutions to community settings and those remaining behind (Stancliffe & Lakin, 1998). This study found that controlling for individual differences, the individuals who left institutions used significantly more community places, engaged in significantly more social activities, experienced significantly more personal integration, had significantly more family contacts, and made significantly more choices at an adjusted expenditure that was 66% of that of their counterparts who remained in institutions.

The studies reviewed here demonstrate strongly and consistently that people who move from institutions to community settings have experiences that help them to improve their adaptive behavior skills. The studies suggest that community experiences increasingly provide people with environments and interventions that reduce challenging behavior. And, a growing body of research suggests that people enjoy a better quality of life along dimensions that have been quantified differently by different researchers.

This review has been able to draw on a data set of remarkable size (over 2,600 subjects) and scope (pre- and post-tests over a period of six months to seven years). The findings are not easily dismissed. There are, however, limitations that must be noted:

- While this review examined more than 250 studies on this topic, there are undoubtedly other studies that were not identified by the methods we employed. Although we used many approaches to identify relevant studies, much of this research is contracted evaluation research and is not submitted for publication. Its identification, therefore, is not always successful.
- Maturation effects cannot be ruled out. As people get older they grow and develop skills. In a longitudinal study, people are maturing during the study. The selection criteria attempted to control for this by ruling out studies conducted primarily on children who are most susceptible to "maturation effects." The congruence between the findings of the "contrast" group and longitudinal studies suggest that the outcomes we noted were not due solely to maturation effects.
- Many studies adapted existing instruments to meet their own purposes. While most studies reviewed reported the reliability and validity of their measures or used measures with reliability reported elsewhere, not all did.
- While all of the studies met basic criteria listed in the methods section, studies varied in their scientific rigor or at least in the degree to which the rigor of the methodology was described.
- The subject selection for the studies may have a positive bias in that some persons who moved to the community and experienced declines in adaptive behavior or increases in challenging behavior were re-institutionalized. Score changes for persons re-institutionalized before follow-up were not generally included in the data sets.
- Although this report differentiates between findings that were statistically significant and those that were not, it does not report indices of effect size, or practical significance for those studies that had statistically significant findings. Effect sizes were rarely reported in the studies reviewed. No study reviewed reported an index of beta, or statistical power. On a positive note in this regard, the one meta-analysis that has addressed research on this topic reported findings that were consistent with those reported in this manuscript (Lynch, Kellow & Willson, 1997).

Despite these limitations, this is a robust array of research whose findings are remarkable for their consistency.

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Policy Research Brief
October 1999 • Vol. 10, No. 1

Policy Research Brief is published by the Research and Training Center on Community Living, Institute on Community Integration (UAP), College of Education and Human Development, University of Minnesota. This publication is supported, in part, by Grant #90-DN-0028-03 from the Administration of Developmental Disabilities, U.S. Department of Health and Human Services; Cooperative Agreement #H133B980047 from the National Institute on Disability and Rehabilitation Research (NIDRR), U.S. Department of Education; and supplemental funding from the Health Care Financing Administration, U.S. Department of Health and Human Services. Content does not necessarily reflect the official position of the funding agencies.

Managing Editors are Vicki Gaylord and Mary Hayden. The opinions expressed are those of the authors and do not necessarily reflect the position of the Center or its funding sources.

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